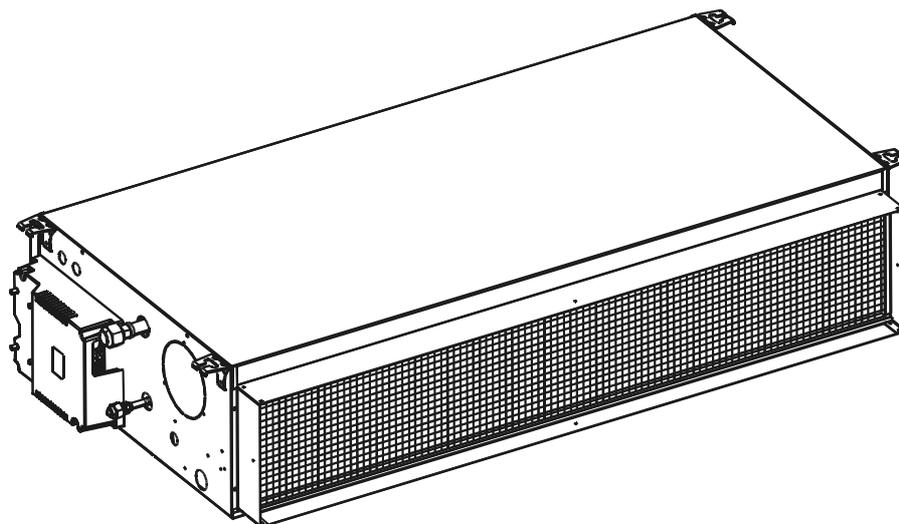


ENGLISH	CENTRAL AIR CONDITIONER SPLIT SYSTEM WITH ELECTRONIC CONTROL - SERIES LS AND LS/BS DCI
FRANÇAIS	CLIMATISEUR CENTRAL SPLIT A CONTROLE ELECTRONIQUE - SERIE LS ET LS/BS DCI
DEUTSCH	ZENTRALE KLIMAANLAGE SPLIT-SYSTEM MIT ELEKTRONISCHER STEUERUNG LS UND LS/BS DCI -SERIE
ESPAÑOL	ACONDICIONADOR DE AIRE CENTRAL DEL TIPO "SPLIT" CONTROL ELECTRÓNICO - SERIE LS Y LS/BS DCI
ITALIANO	CONDIZIONATORE D'ARIA CENTRALIZZATO SISTEMA SPLIT - SERIE LS A CONTROLLO ELETTRONICO E LS/BS DCI
РУССКИЙ	ЦЕНТРАЛЬНАЯ СПЛИТ-СИСТЕМА КОНДИЦИОНЕРА ВОЗДУХА С ЭЛЕКТРОННЫМ УПРАВЛЕНИЕМ - СЕРИЯ LS и LS/BS DCI

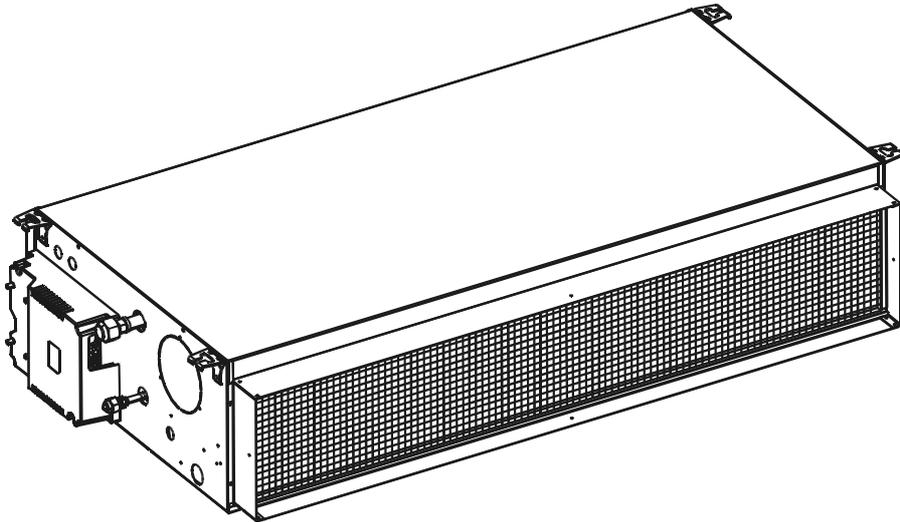


INSTALLATION INSTRUCTIONS
INSTRUCTIONS D'INSTALLATION
INSTALLATIONSANLEITUNG
INSTRUCCIONES DE INSTALACIÓN
MANUALE PER L'INSTALLAZIONE
РУКОВОДСТВО ПО УСТАНОВКЕ



CENTRAL AIR CONDITIONER SPLIT SYSTEM

**WITH ELECTRONIC CONTROL
SERIES LS
and LS/BS DCI**



INSTALLATION INSTRUCTIONS

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OPERATING TEMPERATURE RANGE

Cooling	16°÷30°C	10°÷46°C	-10°÷46°C
Heating	16°÷30°C	-9°÷21°C	-15°÷24°C

MINIMUM STATIC PRESSURE

Capacity:	< 8 KW	25 Pa
	8 ÷ 12 KW	37 Pa
	> 12 KW	50 Pa

Test Mode:

Test Mode is set only for performance testing purposes, and not for user operation.

Test Mode can be initiated by either one of the following conditions:

- Operating the unit with the following remote control settings and temperature conditions:
Cool Mode, SPT=16°C and RAT=27±1°C
OAT=35±11°C, for 30 minutes;
Heat Mode, SPT=30°C and RAT=20±1°C,
OAT=7±11°C for 30 minutes.
- Entering Diagnostics with Cool/SPT=16°C or Heat/SPT=30°C

1. GENERAL

The installation instructions relate to LS air-conditioners. LS air-conditioners are made up of two units: an indoor unit (evaporator) and an outdoor unit (condenser). The two units are interconnected by two refrigerant tubes, an electric cable and a control cable.

Below are recommendations for correct installation of apartment air-conditioner systems:

- Evaluate the building's heat absorption.
- Choose the shortest route for the refrigerant lines, with minimum bends.
- A 0.3% loss of efficiency for each meter of tubing beyond the first 7.5 meters should be taken into account.
- Check the return air route from the air-conditioned area through the return air grille to the inlet grille of the indoor unit. The route must be free of obstruction and must not pass through non air-conditioned areas.
- On a second level of homes (with two levels) the return air grille will be installed close to the floor and with verification of air outlet from the rooms.
- Use air manifold and return air grilles of a correct size, in conformity with the company's recommendations.
- In systems with articulated air ducts:
 - Articulated ducts of a correct diameter, following the shortest and straightest possible routes without bends.
 - Use of deep adapters only (at least 220 mm) for connecting air ducts and grilles.

ATTENTION!

Frequent problems in installations are presented below. In order to avoid them, relate to them prior to the planned installation:

- A.** Lack of suitable ducts for air return. Air exchange through an open door - a bad solution!
- B.** No access to air filters and the electrical component box.
- C.** There are openings and passages to unconditioned floors, or even open to outside air.
- D.** Air circulation between rooms.
- E.** Use of incorrect air distributors. The injection and distribution cannot be properly directed.
- F.** De-icing thermostat does not work, telephone cable was not installed between the outdoor unit and the indoor unit.
- G.** Noise in the ducts, when there is no sound insulation inside the ducts.
- H.** Absence of fresh air influx in a public place.
- I.** Feeling of discomfort in a office having internal areas and rooms with outside looking windows both connected to the same unit.
- J.** Units installed in high places may not provide sufficient heating on a cold day. Installation of an auxiliary heating element is recommended. This is extremely important in units that operate at night. (An optional heating element kit can be ordered from the factory).

The appliance shall not be installed in the laundry

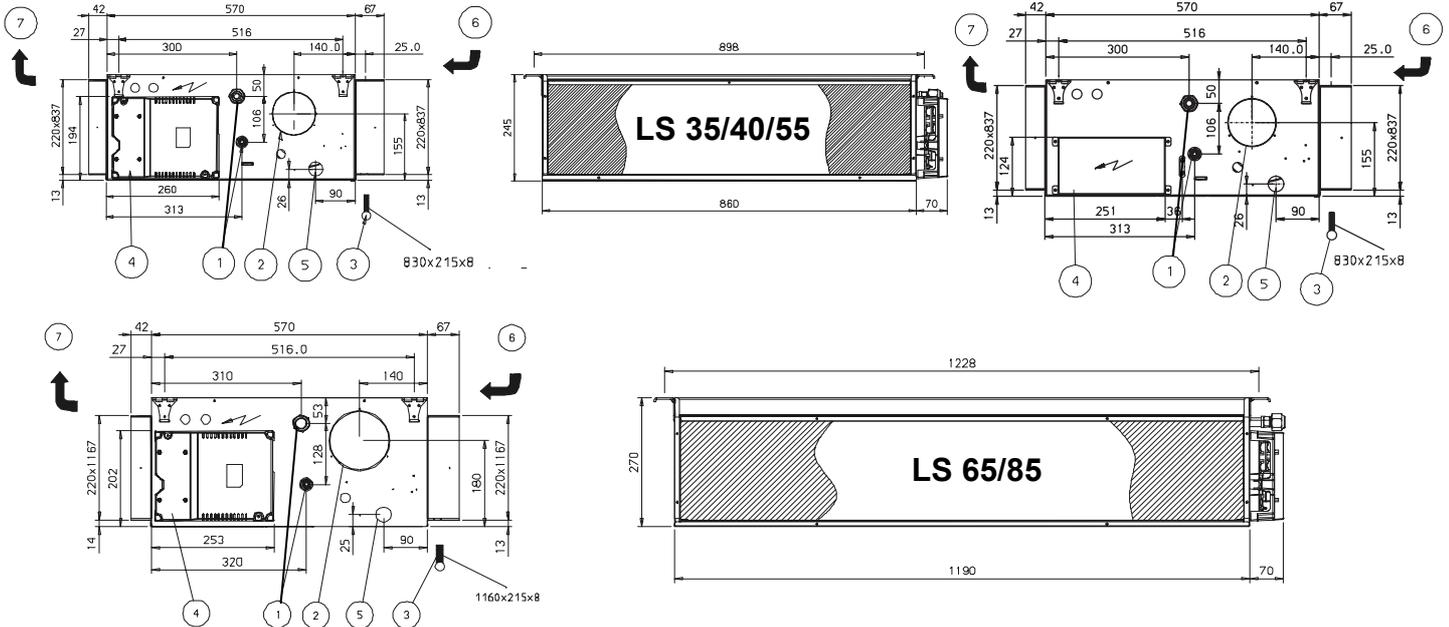
NOTE:

This manual is for single split applications

For multi split applications please use installation manual supplied within outdoor unit package.

LS Indoor Unit (Evaporator)

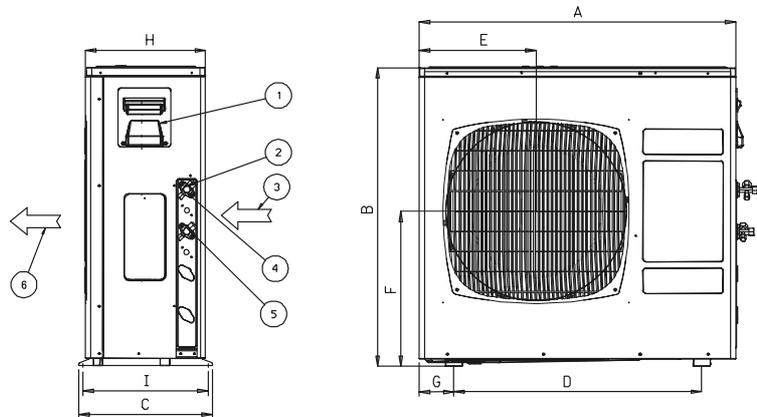
LS/BS DCI



- 1. Flare coupling
- 2. Fresh air intake \varnothing 100 and \varnothing 125
- 3. Filter
- 4. Electrical component box 250x190x70
- 5. Condensate Drain Port
- 6. Air inlet
- 7. Air outlet

LS Outdoor Unit (Condenser)

- 1. Electric connections
- 2. Suction line connection (flare)
- 3. Air inlet
- 4. Service cocks
- 5. Liquid line connection (flare)
- 6. Air outlet



Dimensions (mm)	LS35/BS11 DCI/LS35	LS 35-35	LS 40	LS 55	LS 65	LS 85
A	795	845	795	845	845	900
B	610	690	610	690	690	860
C	315	370	315	370	370	380
D	500	545	500	545	545	706
E	265	300	265	300	300	333
F	270	350	270	350	350	450
G	148	152	148	152	152	98
H	290	300	290	300	300	340
I	293	330	293	330	330	357

Figure 1: LS models, general dimensions

2. SELECTING THE LOCATION OF UNITS

Only trained and qualified service personnel recommended by the company should install the air conditioner, in pursuance of the company specifications and using pipes, wiring, and the standard installation accessories of the company. Any service call, maintenance or repair carried out by the company on equipment that was installed in noncompliance with the company's instructions will require payment.

In selecting the location of the units, the following requirements should be taken into account:

2.1 Relative location of the units

Install the outdoor unit (condenser) and the indoor unit (evaporator) as close as possible to each other. For determining the maximum permitted distance between them, see page 8. If it is necessary to exceed this distance, consult the company.

2.2 Selecting the outdoor unit (condenser) location

- Allow sufficient space for servicing and air flow around the unit.
- Avoid the unit's exposure to direct sunlight.
- Select a place for the unit that will cause minimum disturbance and/or inconvenience to the user and the neighbors.
- A minimum of 200 mm is required between the unit and any wall.
- When installing in an enclosed space (balcony, laundry room etc.), make sure that there are vents ensuring the release of the warm air outside and preventing its return into the outdoor unit.
- In the case of several outdoor units installed in a group, make sure that the warm air discharged by one outdoor unit is not directed toward another outdoor unit.
- Make sure that the wall on which the outdoor unit is to be installed has a minimum thickness of 200 mm and is strong enough to support the weight of the unit. Do not install on a light structure that is not resonance vibration-proof (for instance I-tung).
- When the outdoor unit is installed below the level of the indoor unit, ensure that the height difference between the units is as explained on page 8.
- When installing on the balcony of a second floor or higher, make sure that the level of the upper housing of the outdoor unit is at the height of the railing. If the outdoor unit is nonetheless installed lower, ensure that it is installed in a way that will allow easy access and possibility of removing the cover when servicing the unit.
- When the outdoor unit is installed in an alcove or in a place without free access, install tubing longer than that usually required, with several loops, to allow for moving the unit when servicing.
- Take into account that water dripping occurs during the heating operation. If it disturbs neighbors, ensure drainage.
- It is recommended not to hang outdoor units on bedroom walls.
- Do not install outdoor units on tile and asbestos roofs.

2.3 Selecting the indoor unit (evaporator) location

Take into account the following requirements when selecting the place of the indoor unit:

- Allow maximum air diffusion, to as great as possible a distance within the space to be air-conditioned.
- Allow free passage for the return air coming into the air-conditioner.
- Ensure adequate drainage of condensation water produced inside the unit.
- Ensure maximum quiet near the bedrooms.
- A minimum of 150 mm is required between the filter and the nearby wall.
- Easy access to the electrical component box and other parts of the indoor unit for servicing.
- Lower ceiling at least 70 mm under the bottom of the unit.

INSTALLATION/SERVICE TOOLS (ONLY FOR R410A PRODUCT)

CAUTION

New Refrigerant Air Conditioner Installation

THIS AIR CONDITIONER ADOPTS THE NEW HFC REFRIGERANT (R410A) WHICH DOES NOT DESTROY OZONE LAYER. R410A refrigerant is apt to be affected by impurities such as water, oxidizing membrane, and oils because the working pressure of R410A refrigerant is approx. 1.6 times of refrigerant R22. Accompanied with the adoption of the new refrigerant, the refrigeration machine oil has also been changed. Therefore, during installation work, be sure that water, dust, former refrigerant, or refrigeration machine oil does not enter into the new type refrigerant R410A air conditioner circuit.

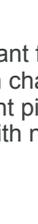
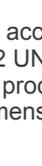
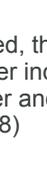
To prevent mixing of refrigerant or refrigerating machine oil, the sizes of connecting sections of charging port on main unit and installation tools are different from those used for the conventional refrigerant units. Accordingly, special tools are required for the new refrigerant (R410A) units. For connecting pipes, use new and clean piping materials with high pressure fittings made for R410A only, so that water and/or dust does not enter. Moreover, do not use the existing piping because there are some problems with pressure fittings and possible impurities in existing piping.

Changes in the product and components

In air conditioners using R410A, in order to prevent any other refrigerant from being accidentally charged, the service port diameter size of the outdoor unit control valve (3 way valve) has been changed. (1/2 UNF 20 threads per inch)

- In order to increase the pressure resisting strength of the refrigerant piping, flare processing diameter and opposing flare nuts sizes have been changed. (for copper pipes with nominal dimensions 1/2 and 5/8)

New tools for R410A

New tools for R410A	Applicable to R22 model	Changes
Gauge manifold	×	 As the working pressure is high, it is impossible to measure the working pressure using conventional gauges. In order to prevent any other refrigerant from being charged, the port diameters have been changed.
Charge hose	×	 In order to increase pressure resisting strength, hose materials and port sizes have been changed (to 1/2 UNF 20 threads per inch). When purchasing a charge hose, be sure to confirm the port size.
Electronic balance for refrigerant charging	○	 As working pressure is high and gasification speed is fast, it is difficult to read the indicated value by means of charging cylinder, as air bubbles occur.
Torque wrench (nominal dia. 1/2, 5/8)	×	 The size of opposing flare nuts have been increased. Incidentally, a common wrench is used for nominal diameters 1/4 and 3/8.
Flare tool (clutch type)	○	 By increasing the clamp bar's receiving hole size, strength of spring in the tool has been improved.
Gauge for projection adjustment	—	Used when flare is made by using conventional flare tool.
Vacuum pump adapter	○	 Connected to conventional vacuum pump. It is necessary to use an adapter to prevent vacuum pump oil from flowing back into the charge hose. The charge hose connecting part has two ports -- one for conventional refrigerant (7/16 UNF 20 threads per inch) and one for R410A. If the vacuum pump oil (mineral) mixes with R410A a sludge may occur and damage the equipment.
Gas leakage detector	×	 Exclusive for HFC refrigerant.

- Incidentally, the "refrigerant cylinder" comes with the refrigerant designation (R410A) and protector coating in the U.S's ARt specified rose color (ARI color code: PMS 507).
- Also, the "charge port and packing for refrigerant cylinder" requires 1/2 UNF 20 threads per inch corresponding to the charge hose's port size.

3. INSTALLATION OF THE INDOOR UNIT (THE EVAPORATOR)

3.1 Installation of the indoor unit (see fig. 2)

- A.** The indoor unit is designed for installation inside the building in a place not exposed to outdoor conditions.
- B.** When it is necessary to install the unit outside the building or in a roof space, take the following steps:
- Protect the unit from damp and from heat radiation and provide it with additional glass wool external thermal insulation with 1" thick aluminum coating.
 - Plan as short as possible a return air duct with two arcs at most; the duct opening at its connection to the unit must be of the same size as the backside of the unit.
 - In order to reduce noise from vibrations, avoid rigid contact of the unit with the building's structure by using suitable shock absorbers and flexible sleeves between the units and the ducts.
 - The return air grille must be as close as possible to the air suction side

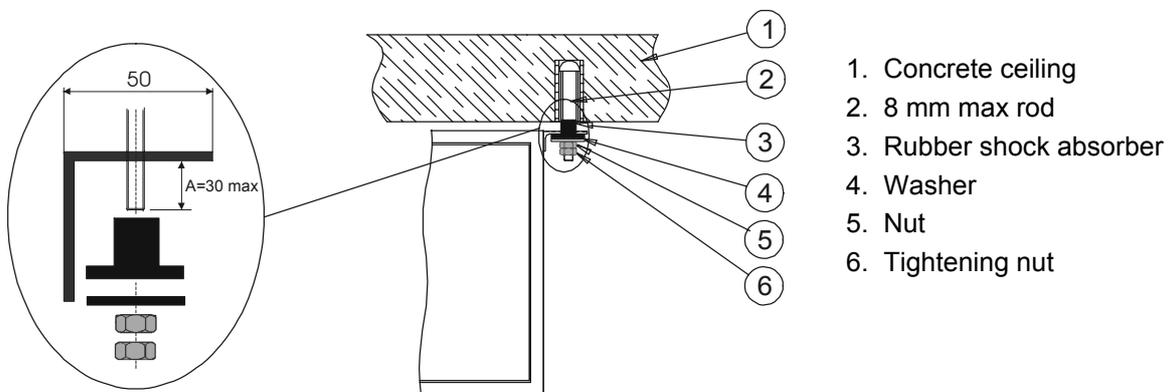


Figure 2: Installation of indoor unit on ceiling

Plan in advance an easy access to the unit for servicing:

The unit is accessible for servicing from its bottom only.

- Allow a minimum of 150 mm between the wall and the air filters.
- Height of the space required for installation is 80 mm minimum under the unit.
- Access for servicing to all the bottom area of the unit to the size of the service panel.
- Seal the space in which the unit is installed in order to prevent penetration of unconditioned air into the return air. Also insulate with thermal insulation every partition bordering on an area that is not air-conditioned.

1. Vibration absorbers
2. Return air intake
3. Air-conditioned air outlet
4. Opening for removing air filters
5. Control access aperture at the bottom of the unit
6. False ceiling in the access area for servicing

Attention!

A possibility must be left for reaching all the bottom area of the unit for servicing.

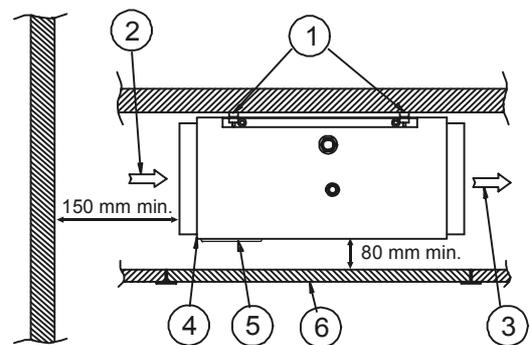


Figure 3: Installation of indoor unit

3.2 Condensate drain piping of the indoor unit

- It is recommended to have a professional plumber prepare a drain outlet having a 32 mm diameter rigid PVC tube near the indoor unit, to which a flexible drain pipe for the drainage of the indoor unit can be attached.
- Install a siphon on the drain line near the unit as portrayed in fig. no. 4.
- Plan in advance the path of the drain line with a downward slope of at least 2% and a water trap (siphon) on the line in order to prevent intake of air through the tube into the unit and to facilitate the evacuation of condensate water from the unit.
- The rigid drain tube end must be 50 mm lower than the bottom of the unit.

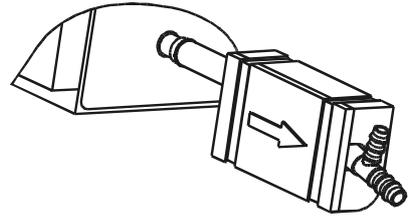


Figure 4: Siphon on the drain line

4. OUTDOOR UNIT INSTALLATION

Installation on flat surface (roof, ground, etc.)

The outdoor unit should be elevated at least 100 mm above the ground by using concrete pad, concrete blocks or wooden beams, in order to allow free flow of condensate water (See Figure 5).

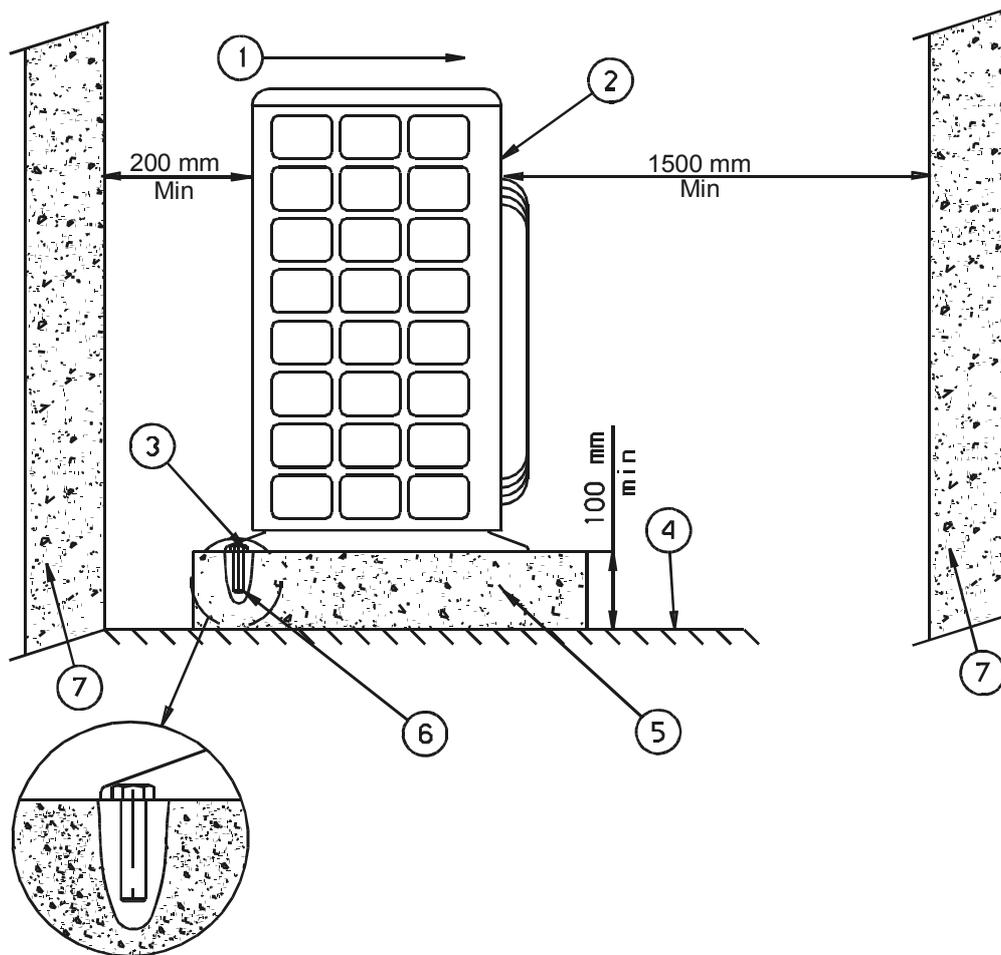


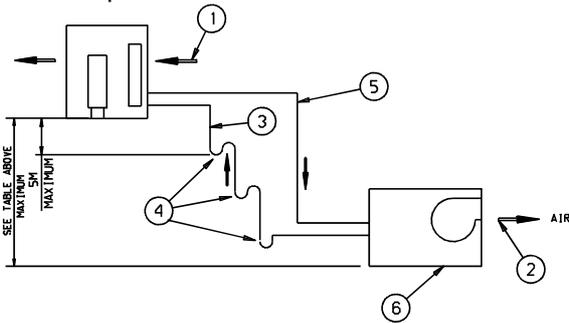
Figure 5: Outdoor Unit Installation Criteria

- | | |
|-----------------------------|---------------------------------|
| 1. Outside the building | 4. Floor |
| 2. Outdoor Unit | 5. Concrete base or floor tiles |
| 3. Serrated Rubber 40x80 mm | 6. Anchor bolts |
| | 7. Wall |

5.2 Recommendations for refrigerant tubing installation

There are three possible variants, as shown on the diagrams:

1. The outdoor unit is installed above the indoor unit (Figure 7) - such installation requires an oil trap in the suction line at the lowest point of the riser. The radius of the oil trap should be as short as possible (see Figure 8). Horizontal runs of the suction line should have a 0.5% minimum pitch toward the outdoor unit. The liquid line should parallel the suction line (except for the oil trap). In case the tubing insulation had to be partially removed for installation purposes, it is imperative that the lines be fully insulated with Armaflex, or equivalent insulation, after installation has been completed.



1. Air inlet
2. Air outlet
3. Suction Line
4. Oil trap every 5 m
5. Liquid Line
6. Indoor unit

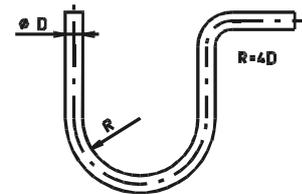
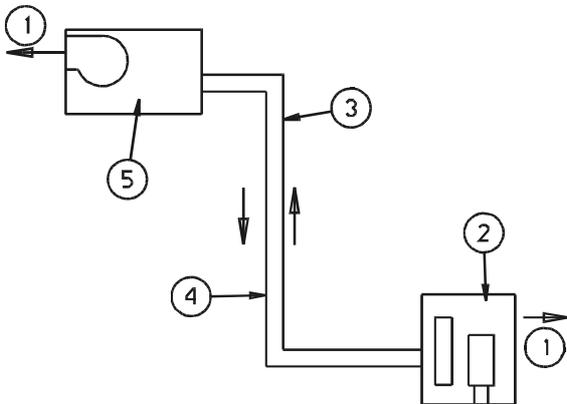


Figure 7: Connection of refrigerant tubing - Outdoor Unit above Indoor Unit

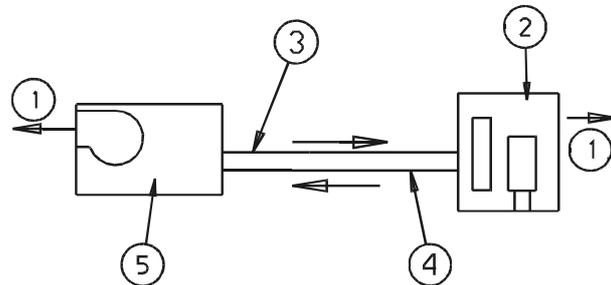
Figure 8: Tube Bending

2. The outdoor unit is installed below the indoor unit (Figure 9) - no trap is required in such installation. Besides it, the same applies as above.
3. The units are installed at the same level (Figure 10) - no trap is required in such installation. Besides it, the same applies as above.



1. Air outlet
2. Outdoor Unit
3. Liquid Line
4. Suction Line
5. Indoor Unit

Figure 9: Connection of refrigerant tubing - Outdoor Unit below Indoor Unit



1. Air outlet
2. Outdoor Unit
3. Suction Line
4. Liquid Line
5. Indoor Unit

Figure 10: Connection of refrigerant tubing - Outdoor Unit and Indoor Unit at the same level

5.3 Setting in Operation

WARNING

This paragraph describes the necessary steps for setting the unit into operation; be sure to follow the instructions, to assure proper functioning of the air-conditioner.

The outdoor unit is charged with the correct amount of refrigerant. In extended runs, for additional refrigerant charge please refer to the outdoor unit nameplate. This operation shall be performed only by qualified refrigeration technicians with a professional charging set.

5.3.1 Flare preparation

- Cut the tube, using a tube cutter. Make sure that the cut is perpendicular to the tube axis and free of burrs (see Figure 11).
- Slip the flared nut over the tube, secure the tube in the flaring tool, as shown in Figure 12 and perform the flare on the tube end. The tube projection length (A) from the flaring block varies with tube diameter and shall be set as indicated in the table. Apply few drops of refrigeration oil to the tube before flaring.

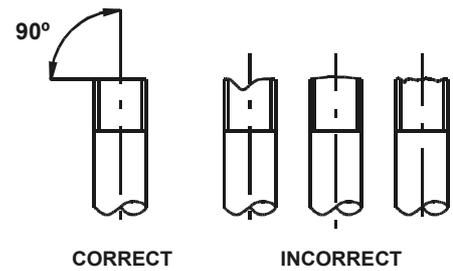


Figure 11: Tube cutting

5.3.2 Connecting the tubes (See Figure 13)

Connect and tighten the flare nuts to the refrigeration valves on the outdoor unit and to the male connectors of the indoor unit. Coat the flared surfaces lightly with refrigeration oil to improve sealing.

Note: First tighten manually the flare nuts, and then use a wrench. See Table No. 2 for tightening torque values.

A (mm)	TUBE OD
1.3	3/8"
1.6	1/2"
1.9	5/8"
2.1	3/4"

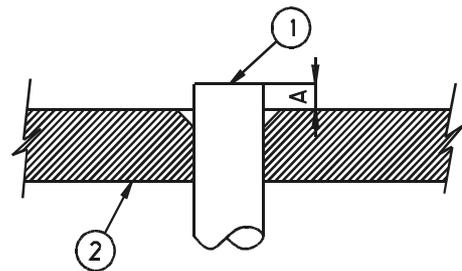


Figure 12: Tube flaring

- Copper Tube
- Flaring Tool

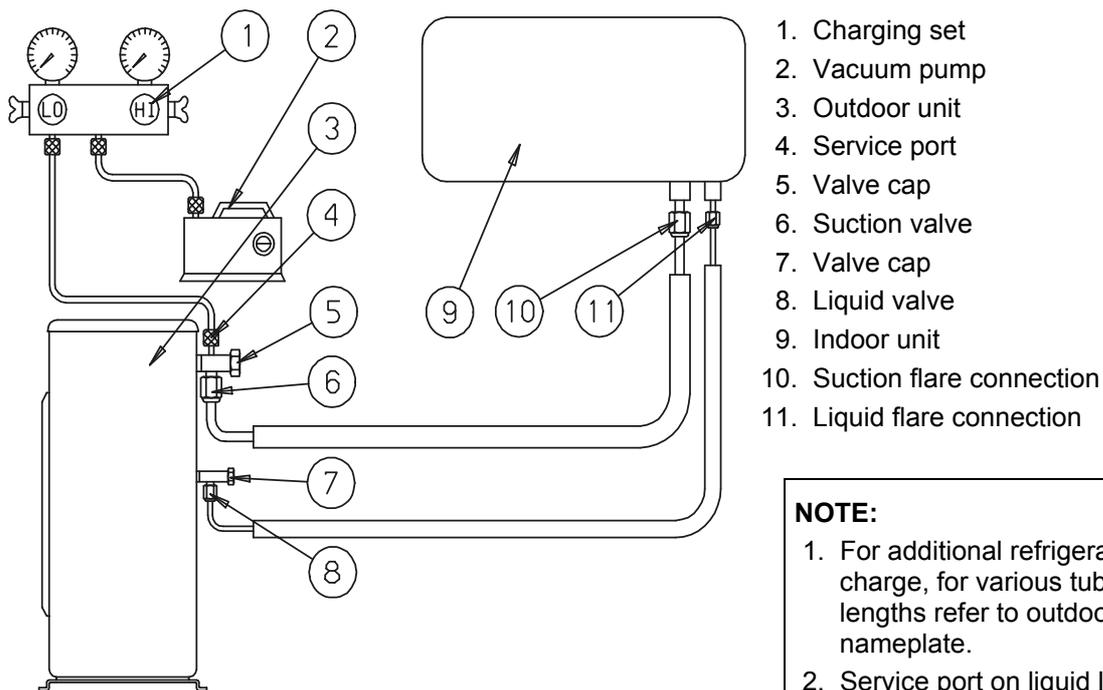
5.3.3 Evacuation and setting in operation

- Take two charging hoses equipped with a pushpin on one side, as shown in Figure 13. Connect the two hose ends without the push-pin to the LOW (suction) and HIGH (liquid) valves of the charging set; remove the guard caps from the service ports of the tree-way suction and liquid valves and connect the hose ends with the push-pins to the service ports (see Figure 14). On units without service valve on the liquid port, connect only the hose to the suction 3-way valve.
- Connect the center hose of the charging set to a vacuum pump.
- Turn on the vacuum pump and make sure that the low pressure gauge reading moves from 0 cm Hg to 76 cm Hg; then evacuate the system for 10 minutes.
If gauge needle does not move from 0 cm Hg to 76 cm Hg, this indicate a leak. In this case, tighten all connections; if leaking stops after the tightening of tubing connections, proceed from step c. If leaking persists even after the connections had been tighten, detect the leak and repair it; be sure to proceed only after all leaks have been eliminated.
- Close the valves of both the suction and liquid ports of the charging set and turn off the vacuum pump. Make sure that the gauge needle does not move for about 5 minutes.
- Disconnect the charging hoses from the vacuum pump and from the service ports of both the tree-way valves.
- Replace the service port and valve caps of both tree-way valves and tighten them with a torque wrench; see table of torque values in table No. 2.

CAUTION

When performing the following steps, avoid any exposure to the service valve ports; remember that the system is under pressure.

- Remove the valve caps (1) from both valves; position both valves to "Open" using an hexagonal wrench (See Figure 14).
- Replace valve caps of both three-way valves. Check for gas leakage with a leak detector or soapy water.



1. Charging set
2. Vacuum pump
3. Outdoor unit
4. Service port
5. Valve cap
6. Suction valve
7. Valve cap
8. Liquid valve
9. Indoor unit
10. Suction flare connection
11. Liquid flare connection

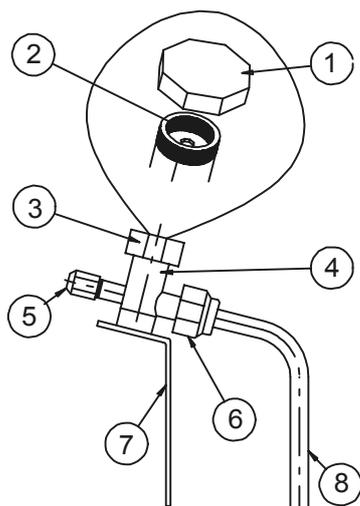
NOTE:

1. For additional refrigerant charge, for various tubing lengths refer to outdoor unit nameplate.
2. Service port on liquid line 3-way valve is not supplied on all units.

Figure 13: Refrigerant Tubing Service Connection

TUBE (Inch)	1/4"	3/8"	1/2"	5/8"	3/4"
TORQUE (N.m.)					
FLARE NUTS	11-13	40-45	60-65	70-75	80-85
VALVE CAP	13-20	13-20	18-25	18-25	40-50
SERVICE PORT CAP	11-13	11-13	11-13	11-13	11-13

Table No. 2: Tightening Torque Values



1. Valve Protection Cap-end
2. Use Allen Wrench to open/close the Refrigerant Valve
3. Valve Protection Cap
4. Refrigerant Valve
5. Service Port Cap
6. Flare Nut
7. Unit Back Side
8. Copper Tube

Figure 14: Service Refrigeration Valve

6. ELECTRICAL CONNECTIONS

6.1 Power Supply

WARNING

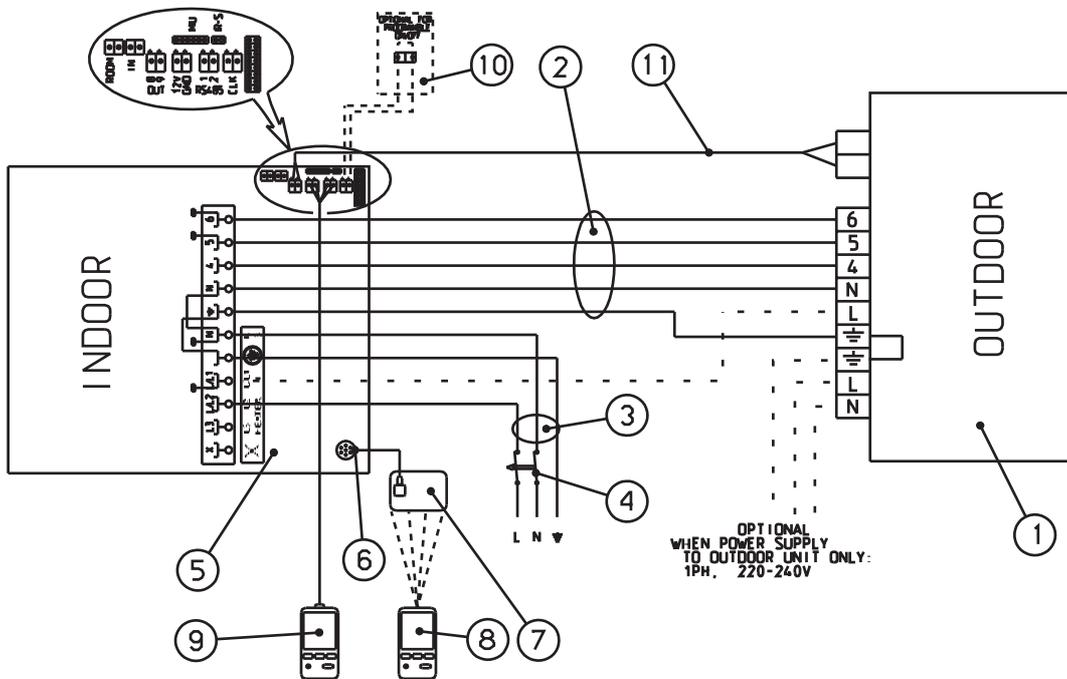
Electrical connection shall be made only by authorized electricians and in accordance with local electrical requirements and codes. The system must be grounded.

Single-phase models and three phase models are available; for each of them, the necessary wiring diagram is shown. Connect the unit to the main power supply as for its applicable wiring diagram.

- a) Single phase-models (See Figure 16).
The main power supply cable must be HO5VV-F type, when power supply to indoor unit, HOVRN-F type, when power supply to outdoor unit and contain 3x4 mm² leads.
- b) Three phase-models (See Figure 17).
The main power supply cable must be HOVRN-F type and contain 5x2.5 mm² leads.

WARNING

On unit with scroll type compressors, it is mandatory to listen to compressor operation upon initial startup. Should there be an unusual noise in operation, it is necessary to interchange the phases at the power supply connection.

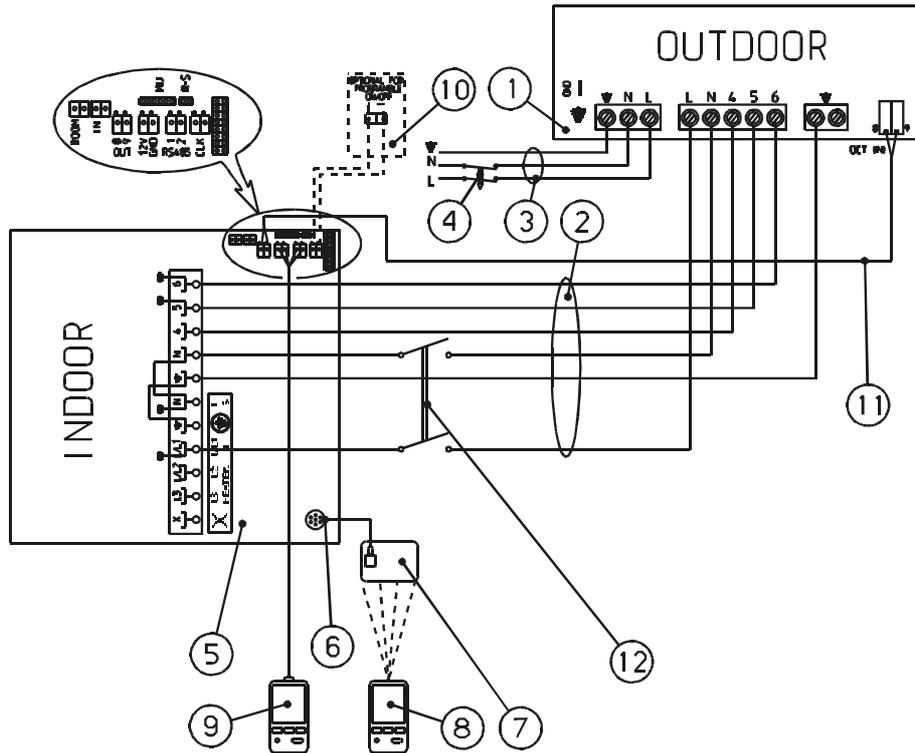


1. Outdoor unit
2. Inter connecting cable
3. Power supply cord
4. Switch* ON/OFF (by Installer)
5. Indoor unit
6. Quick-attach coupling
7. Display control unit
8. Wireless Remote Control
9. Wired Remote Control
10. Remote ON/OFF Switch (by Installer)
11. Control Cable

* Switch with contact separation of at least 3mm in all poles

Figure 15: Single Phase Units – Indoor Supply: Electrical Scheme

MODEL	CIRCUIT BREAKER
LS35/BS11 DCI/LS35	10 A
LS 40	16 A
LS 55	16 A
LS 65	16 A



1. Outdoor unit
 2. Inter connecting cable
 3. Power Supply
 4. Switch* ON/OFF (by Installer)
 5. Indoor unit
 6. Display Quick connector
 7. Display control unit
 8. Wireless Remote Control
 9. Wired Remote Control (optional)
 10. Remote ON/OFF Switch (by Installer)
 11. Control Cable (Shielded)
 12. Switch* ON/OFF (by Installer)
- * Switch with contact separation of at least 3mm in all poles

Figure 16: Single Phase Units – Outdoor Supply: Electrical Scheme

MODEL	CIRCUIT BREAKER
LS 85	20 A

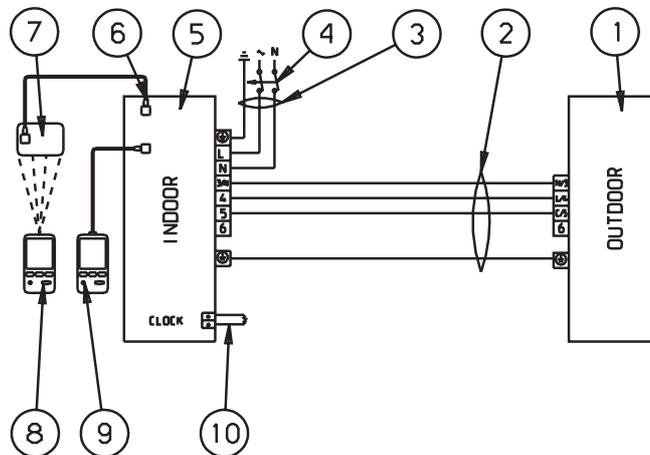
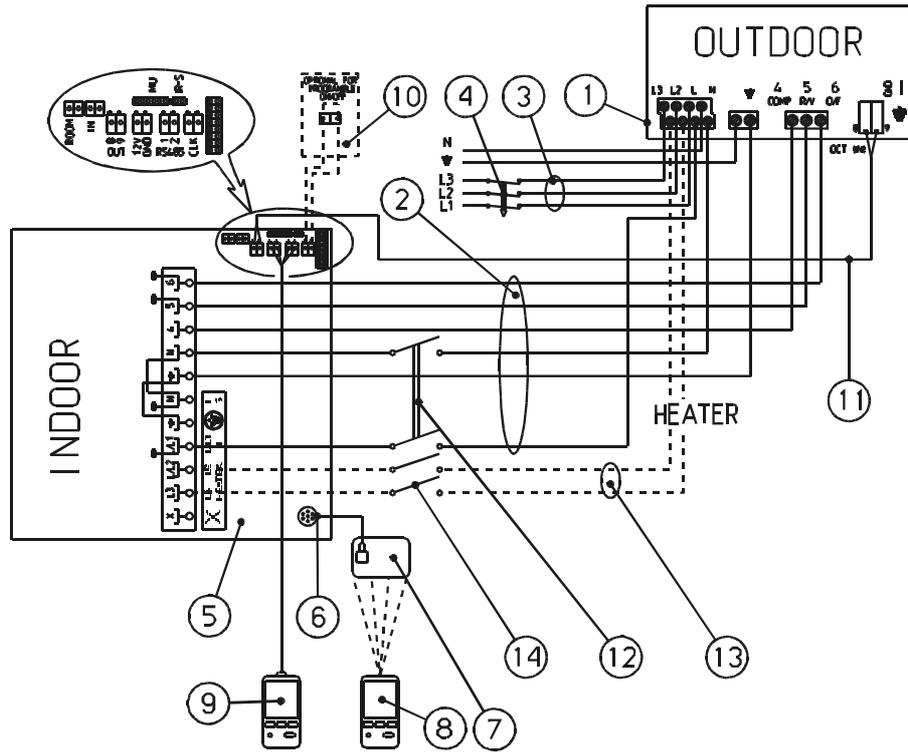


Figure 16-b: LS35/BS11 DCI - Indoor Supply; Electrical Scheme



- | | |
|----------------------------------|--|
| 1. Outdoor unit | 8. Wireless Remote Control |
| 2. Inter connecting cable | 9. Wired Remote Control (optional) |
| 3. Power Supply | 10. Remote ON/OFF Switch (by Installer) |
| 4. Switch* ON/OFF (by Installer) | 11. Control Cable (Shielded) |
| 5. Indoor unit | 12. Switch* ON/OFF (by Installer) |
| 6. Display Quick connector | 13. Heater Cable (Optional) |
| 7. Display control unit | 14. Switch* ON/OFF for Heater (by Installer) |

* Switch with contact separation of at least 3mm in all poles

Figure 17: Three Phase Units: Electrical Scheme

MODEL	CIRCUIT BREAKER
LS 55	3X16 A
LS 65	3X16 A
LS 85	3x16 A

6.2 Interconnecting cable

The electrical cable between the indoor and outdoor units, for all models, must be HOVRN-F type. Conductors shall be of size and number as indicated in Figure 15, 16 or 17. The electrical cable must be one-piece, without any joints. When installing the cable under the floor, it must be protected and isolated from any possible contact with water. When the cable path runs through a wall or an acoustic ceiling, it will be protected with fireproof tubing. In addition, the two units should be interconnected by a telephone-type cable, 2 x 0.5 mm². See applicable wiring diagram in Figure 15, 16 or 17.

6.3 Display control unit

6.3.1 Location criteria

It is recommended to install the Display Control Unit close to a ceiling in a central and neutral zone at typical conditions. In addition, the aesthetic aspect should be considered. The Display Control Unit is connected to the main control board on the air conditioner (the indoor unit) by a communication cable. The cable is connected to the Display Control Unit by a quick-attach 8-pin connector.

6.3.2 Installation of Display Control Unit on Wall

Drill a 12 mm diameter hole on the wall, for routing the communication cable. Open the unit cover, drill 3 holes in the wall to match the holes in the Display Control Unit, install the wall studs and fasten the unit to the wall with 3 screws.

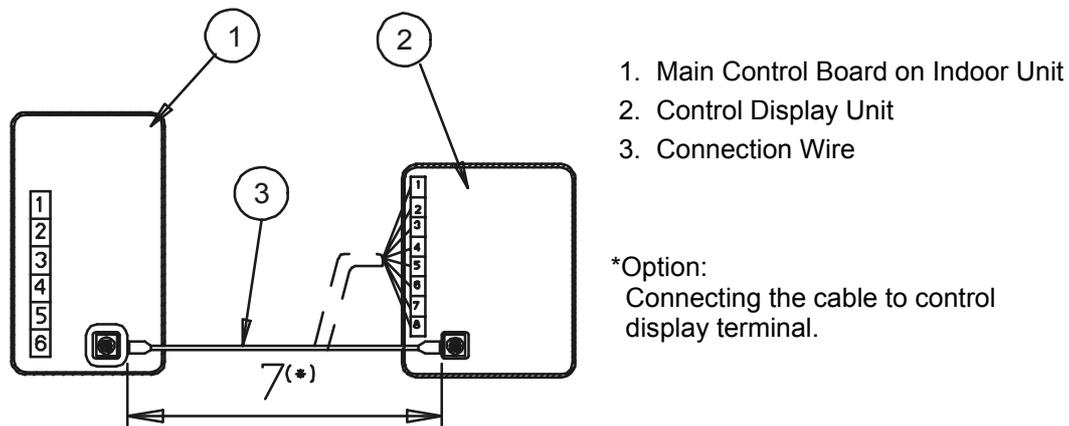
The Display Control Unit (4) is provided with a 7 meters long special communication cable (2), terminated by a plug for connecting to a distribution box (3), which enables the control of the air conditioner from several different rooms, each one from its own Display Control Unit (See figure 18 and 19). Connect the quick-attach connector to the appropriate socket on the main control board in the indoor unit electrical component box (1). Should it not be possible to route the communication cable plug (2) through the wall to the display board (4), the cable end may be cut off and connected to the terminal board on the display unit, according to the colors indicated in figure 18.

WARNING

The plug should not be cut off the communication cable if the cable length is insufficient. In such case, a 5-meter extension cable may be added.

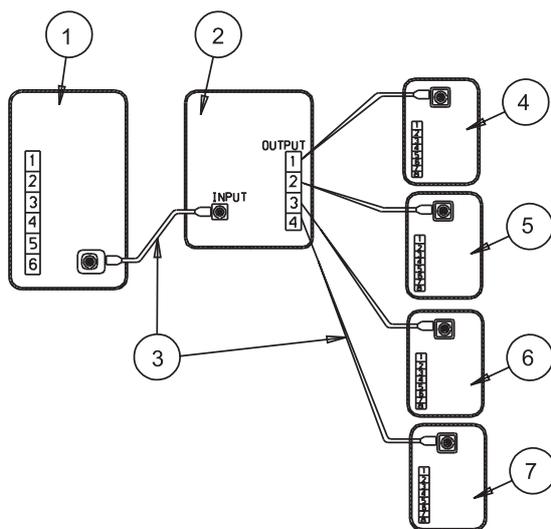
6.3.3 Considerations in locating the Remote-controller

- Locate the Remote-controller in such a way that when mounted on its support on the wall, it will be in line sight with the Display Control Unit (at less than 8 m).
- It is recommended to establish the final location of the Remote Control Unit only after the first operation, assuring proper transmission and reception between the Remote Control Unit and the Display Control Unit.



COLOR CHART	
Conn. Point	Wire Color
1	Gold
2	Green
3	Black
4	Brown
5	Purple
6	Yellow
7	Orange
8	Red

Figure 18: Connection of a single Display Control Unit



1. Main Control Board on Indoor Unit.
2. Distribution Board, Cat N. 402729
3. Communication cable Cat. N. 402730
4. Display Control Unit N. 1 Cat. N. 402713
5. Display Control Unit N. 2 Cat. N. 402713
6. Display Control Unit N. 3 Cat. N. 402713
7. Display Control Unit N. 4 Cat. N. 402713

Figure 19: Connection to 4 Display Control Units in Parallel (optional)

6.3.4 Remote-controller mounting

- a) Secure the Remote-controller bracket on the wall, using two screws and wall studs (supplied with the unit) and peel the outside protection paper from the adhesive surface.
- b) Prior to operating the air conditioner, open the battery compartment cover and make sure that the red tab protecting the batteries has been removed. Replace the cover and verify that the Remote-controller functions properly.
- c) Attach the Remote-controller to the bracket with a firm movement.

6.4 LS Remote Control (Optional)

The wall-mounted remote control is available in two versions, in infrared wireless or wired.

The remote control installation instructions are supplied with the unit.

NOTE: The infra-red remote control should be located in a place that have eye contact with the display unit, at a distance no more then 10 m.

The system can measure the temperature in two alternative modes:

- By a sensor located at the air inlet of the indoor unit
- By a sensor located in the Remote-controller, in mode "I FEEL" or "LOCAL". In this mode, the temperature measuring point shifts with the location of the Remote-controller. Its location should therefore be determined as follows:
 - a) Avoid installation at location exposed to direct sunlight or near heat sources.
 - b) Select a location free of any obstructions such as curtains, etc.
 - c) Select a neutral zone where the conditions are those typical for the whole air conditioned space; avoid direct exposure to cool air blown out by the air conditioner.
 - d) Select a location about 1.5 m above the floor, to assure accurate sensing of room temperature.
 - e) Avoid locations exposed to water splashing, dampness or humidity.
 - Batteries should be replaced when the LCD no longer displays data. Remove the Remote-controller from its bracket, open the battery compartment cover in the back of the unit and change the batteries.
 - Use two 1.5 Volt, size AAA batteries.

7. FINAL TASKS

1. Replace all caps and covers and check that they are well shut.
2. Seal all the cracks and holes at the sides of the tubes and bores.
3. Attach the wiring and tubes to the wall with clamps.
4. Check all the operations of the air-conditioner. If necessary, use the operating manual.
 - 4.1 Indoor unit
 - Are all the remote commands received on the air-conditioner control panel?
 - Do the indicator led on the control board work properly?
 - Does the air-conditioner execute all the remote control commands?
 - 4.2 Outdoor unit
 - Check for any abnormal noise or vibrations during operation of the air conditioner.
 - Check that the noise, condensate drain water or airflow does not disturb the neighbors.
5. Run the air-conditioner for cooling and heating
6. Instruct customer on air conditioner exploitation:
 - How to remove, clean and replace the filter.
 - How to turn the air-conditioner on and off.
 - How to choose between heating and cooling and how to set the desired temperature.
 - How to adjust on or off time using the timer.
 - How to operate the air conditioner from the control panel.
 - Give the customer the operating and installation manuals.
 - Help the customer fill in the guarantee certificate.

